Claims

1. A process for the production of a film (55, 66, 69, 99) having at least one electrical component, in particular of organic semiconductor technology, wherein an adhesive layer (57, 93, 96) comprising a radiation-cross-linkable adhesive is applied to a base film (51, 61, 90), the adhesive layer (57, 93, 96) of the radiation-cross-linkable adhesive is applied in a form structured in pattern form to the base film (51) and/or is irradiated in the form of a pattern in such a way that the adhesive layer hardens structured in a pattern form, a transfer film (41) which comprises a carrier film (45) and an electrical functional layer (47, 94, 97) is applied to the adhesive layer (57, 93, 96) with an orientation of the electrical functional layer (47, 94, 97) to the adhesive layer (57, 93, 96), and the carrier film (45) is removed from the film body (54, 64, 68) including the base film (51), the adhesive layer (57, 93, 96) and the electrical functional layer (47, 94, 97), wherein in a first region which is structured in pattern form the electrical functional layer (47, 94, 97) remains as part of the electrical component on the adhesive layer (57, 93, 96) and on the base film (51, 61, 90) and in a second region which is structured in pattern form the electrical functional layer (47, 94, 97) remains on the carrier film (45) and is removed with the carrier film from the base film (51, 61, 90), wherein the adhesive layer comprising a radiation-cross-linkable adhesive is irradiated in pattern form after application of the transfer film (41), whereby the adhesive layer hardens in a region structured in pattern form, and the carrier film is removed from the film body (68) including the base film (51), the adhesive layer and the electrical functional layer, so that the electrical functional layer remains on the base film (51) in the first region which is structured in pattern form and in which the adhesive layer is hardened and is removed with the carrier film (45) in the second region in which the adhesive layer is not hardened.

2. A process for the production of a film (55, 66, 69, 99) having at least one electrical component, in particular of organic semiconductor technology, wherein an adhesive layer (57, 93, 96) comprising a radiation-cross-linkable adhesive is applied to a base film (51, 61, 90), the adhesive layer (57, 93, 96) is applied in a form structured in pattern form to the base film (51) and/or is irradiated in the form of a pattern in such a way that the adhesive layer hardens structured in a pattern form, a transfer film (41) which comprises a carrier film (45) and an electrical functional layer (47, 94, 97) is applied to the adhesive layer (57, 93, 96) with an orientation of the electrical functional layer (47, 94, 97) to the adhesive layer (57, 93, 96), and the carrier film (45) is removed from the film body (54, 64, 68) including the base film (51), the adhesive layer (57, 93, 96) and the electrical functional layer (47, 94, 97), wherein in a first region which is structured in pattern form the electrical functional layer (47, 94, 97) remains as part of the electrical component on the adhesive layer (57, 93, 96) and on the base film (51, 61, 90) and in a second region which is structured in pattern form the electrical functional layer (47, 94, 97) remains on the carrier film (45) and is removed with the carrier film from the base film (51, 61, 90), wherein the adhesive layer comprising the radiation-cross-linkable adhesive is irradiated in pattern form prior to the application of the transfer film (41) in such a way that the adhesive layer hardens in a region structured in pattern form, the transfer film (41) is applied to the adhesive layer which is hardened structured in pattern form and the carrier film (45) is removed from the film body (64) including the base film (61), the adhesive layer and the electrical functional layer (47), so that the electrical functional layer (47) remains on the base film (61) in the first region which is structured in pattern form and in which the adhesive layer is not hardened and is removed with the carrier film (45) in the second region which is structured in pattern form and in which the adhesive layer is hardened.

3. A process according to claim 1 or claim 2 characterised in that the adhesive layer (47) comprising the radiation-cross-linkable adhesive is

applied to the base film (51) by means of a printing process with structuring in pattern form.

4. A process according to one of claims 1 to 3 characterised in that the adhesive layer is printed on to the base film (51) by means of intaglio printing.

5. A process according to one of the preceding claims characterised in that the adhesive layer (57) is printed on to the base film (51) by means of offset printing or flexoprinting.

6. A process according to one of claims 3 to 5 characterised in that the transfer film (45) is radiation-transparent and the adhesive layer (57) is exposed from the side of the transfer film (41) through the transfer film (41).

7. A process according to one of claims 3 to 5 characterised in that the base film is radiation-transparent and the adhesive layer is exposed from the side of the base film through the base film.

8. A process according to one of claims 1 to 7 characterised in that a radiation-cross-linkable adhesive is used, which in the non-hardened condition has a lower adhesion force with respect to the electrical functional layer than the adhesion force between the electrical functional layer and the carrier film.

9. A process according to claim 2 characterised in that the adhesive layer is then irradiated in a second exposure step for hardening the regions of the adhesive layer, which are not yet hardened.

10. A process according to one of claims 1 to 10 characterised in that a mask exposure device, in particular a drum exposure device or a mask exposure device (81) with a mask belt (83) is used for the exposure operation.

11. A process according to one of the preceding claims characterised in that a transfer film (41) is used, which has a release layer (46) between the carrier film (45) and the electrical functional layer (47).

12. A process according to one of the preceding claims characterised in that the electrical functional layer (47, 94, 97) is an electrically conductive layer.

13. A process according to claim 12 characterised in that the electrical functional layer contains conductive nanoparticles, in particular metal, carbon black or graphite particles.

14. A process according to claim 13 characterised in that the electrical functional layer comprises conductive nanoparticles and binding agent.

15. A process according to claim 13 or claim 14 characterised in that the electrical functional layer is compressed upon being applied to the base film, whereby the electrical conductivity of the functional layer is increased.

16. A process according to claim 12 characterised in that the electrical functional layer contains conductive polymers.

17. A process according to claim 12 characterised in that the electrical functional layer contains inorganic substances, for example ITO material.

18. A process according to claim 12 characterised in that the electrical functional layer is a metal layer or a layer of a metal alloy.

19. A process according to one of claims 1 to 11 characterised in that the electrical functional layer is an electrical semiconducting layer which has in particular semiconducting polymers.

20. A process according to one of the preceding claims characterised in that the adhesive layer comprises an electrically non-conductive adhesive.

21. A process according to one of claims 1 to 19 characterised in that the adhesive layer comprises an electrically conductive adhesive.

22. A film (55, 66, 69, 99) produced by a process according to one of claims 1 to 21 and having at least one electrical component, in particular of organic semiconductor technology,

characterised in that

the film (55, 66, 69, 99) has an adhesive layer (57, 93, 96) comprising a radiation-cross-linkable adhesive and the adhesive layer (57, 93, 96) is arranged between an electrical functional layer (47, 94, 97) structured in pattern form and a base film (51, 90) of the film and joins the electrical functional layer (47, 94, 97) structured in pattern form to the base film (51, 90).

23. A film according to claim 22 characterised in that the adhesive layer (57) of a radiation-cross-linkable adhesive is structured in pattern form in the same way as the electrical functional layer (47) structured in pattern form.

24. A film according to claim 22 or claim 23 characterised in that the electrical functional layer (94, 97) is a microstructured electrode layer providing one or more electrodes of the electrical component.

25. A film according to claim 22 or claim 23 characterised in that the electrical functional layer is a microstructured semiconductor layer providing one or more semiconducting component parts of the electrical component.

26. A film (99) according to one of claims 22 to 25 characterised in that the electrical component is an organic field effect transistor.

27. A process for the production of a film comprising at least one electrical component in particular of organic semiconductor technology, characterised in that

a radiation-cross-linkable wash lacquer layer is applied to a base film in a form structured in pattern form, the wash lacquer layer structured in pattern form is irradiated so that the wash lacquer layer hardens, an electrical functional layer is applied to the wash lacquer layer and in a washing process the wash lacquer layer structured in pattern form is removed with the region thereabove of the electrical functional layer so that the electrical functional layer remains on the base body in the region structured in pattern form, to which no wash lacquer layer was applied.

28. A process according to claim 27 characterised in that the wash lacquer is a UV-cross-linkable wash lacquer with acid groups and the wash lacquer is dissolved in the washing process by means of a lye.